



MAKES BUSINESS SENSE

Main types of initiatives possible

At Hydro-Québec, we make it our duty to encourage energy conservation initiatives. Fill in a preliminary form and tell us all about yours!

The possibilities are endless. To inspire you, here is a partial list. Please don't hesitate to submit a proposal of any kind. When it comes to energy efficiency, we're open to all IDEAS!

Of course, **innovativeness** is crucial. The IDEAS program targets technology demonstration or experimentation projects related to energy efficiency whose cost-effectiveness or viability have not yet been proven. To be eligible, a project must demonstrate or test the benefits of a new technology or a new application of an existing technology with the potential for significant, **reproducible** energy savings. These technologies may be intended for commercial, industrial, institutional or residential uses, or any other sector.

→ NONEXHAUSTIVE LIST OF POSSIBLE INITIATIVES

1. Integration of systems and technologies

In this stream, the main innovation involved is the integration of currently available systems and components.

1.1 Heat recovery

- Integration of different systems within the same building
- Integration of similar, complementary systems in several different buildings or housing units
- Dedicated solutions for hospital laundries

1.2 Heating, air-conditioning and ventilation (HVAC)

1.3 Integration of technologies (HVAC, water, solar, etc.)

1.4 Information acquisition

- Diagnostics for calculating electricity consumption
- Various solutions to ensure sustainability of energy efficiency measures

2. High-density, low-temperature thermal storage systems

This stream mainly involves technologies for storing the heat resulting from solar or internal gains (sensible or latent heat) for later use. The innovation in question may involve storage density (MJ/m^3), storage stability (hours, days or even months), depending on the intended application, or the ease of integrating such systems into existing HVAC systems or architectural elements.

Examples of applications sought

- Technical solutions involving various phase-change materials to increase storage density and duration (compared with conventional tanks using water as the storage medium)
- Thermal wells incorporated into structures
- Common storage tanks for multiple buildings
- Thermal storage as a natural complement to passive solar building design

3. Energy-efficient heating and air-conditioning solutions

This stream aims to encourage innovations in actual components or systems to improve energy efficiency—in other words, to maintain the performance of the heating or air-conditioning system while reducing energy consumption.

Examples of applications sought

- Evaporative air conditioning
- Optimizing HVAC equipment performance through microclimate control systems
- Roof mist cooling systems
- Innovative refrigeration systems
- Natural refrigeration systems
- Small-scale absorption refrigeration systems
- Innovative geothermal approaches
- Heat exchangers in building foundations and piles
- Geothermal cooling
- Innovative heat pump applications
- CO_2 heat pumps
- Innovative radiant heating solutions (new applications, lower cost systems, etc.)

4. Motors, electrical equipment and lighting

This stream includes all applications involving the direct conversion of electricity into mechanical force or luminous energy, as well as step-down voltage transformers. The common thread is that increased energy efficiency results in reduced heat loss.

4.1 High-performance motor solutions

- Single-phase Variable-speed solutions, which are more energy efficient than triac controllers
- Competitively priced phase converters (single-phase to three-phase power)
- Motors with magnetic bearings (virtual elimination of shaft friction)
- Energy-generating engine brakes (innovative applications)

4.2 Transformers

- Low-loss distribution transformers (client side)
- Step-down transformers for household appliances

4.3 High-quality, low-cost energy-efficient lighting

- Advanced natural lighting solutions (e.g., fibre optic lighting)
- Advanced lighting controls
- Innovative LED-based applications

5. Mechanical optimization to reduce source energy requirements

This stream involves innovations based on various mechanical concepts that allow equipment to perform useful work while consuming less energy than conventional solutions.

5.1 New friction-reducing solutions (oils, etc.)

- Nanolubricants
- Magnetic cushions

5.2 Various solutions for reducing mechanical losses (vibrations, slippage, etc.)

6. Innovative industrial processes

In this last stream, innovative technologies may be based on various physical principles, new materials used as production inputs or catalysts or, in certain cases, the scaling down of energy-efficient processes used in major industry for smaller-scale applications.

Examples of applications sought

- Nanotechnology-based electroplating
- Cold plasma treatments for textiles
- Scaling down agri-food processes
- Biomass energy development
- Plasma gasification
- Dedicated marine biomass processes
- More energy-efficient recycling processes
- Energy-efficient mitigation measures